Postings: from the desk of Jim Brodrick

Each year around this time, DOE updates its Multi-Year Program Plan (MYPP) for Solid-State Lighting Research and Development and posts it online. We've just completed that task once again, and you can find the newly revised MYPP on our website. Why do we have a MYPP, and why do we bother updating it every year? Because it serves a number of key functions – not only as the main strategy document for our SSL R&D program and a tool that guides our funding awards, but also as our implementation plan. Without it we'd be flying largely by the seat of our pants – the equivalent of a pilot trying to negotiate the wild blue yonder without even a compass. And updating the MYPP each year is essential to ensure that it keeps pace with the warp-speed development of SSL technology.

That updating is not done in a vacuum. The process is highly collaborative and depends on the input of dozens of real-world experts, who span a wide spectrum – from academics and researchers to device and luminaire manufacturers. They joined us this past November for a series of roundtable discussions and conference calls. The proposed MYPP updates that resulted were presented at DOE's February SSL R&D workshop in Raleigh, North Carolina, for wider review and comment. A big thanks to all who helped us this year – the results were well worth the considerable effort.

While last year's MYPP focused primarily on the task structure, based on the progress that had been made over the previous several years, this latest update took a broader approach, looking

more closely at where we are with SSL and where we can go with it. The November roundtables focused on the limits of efficacy, as we attempted to get a better handle on just how much we can expect from the technology. Some attention was given to output spectrum, in order to determine how shaping it might lead to higher efficacies for both LEDs and OLEDs, and that line of inquiry in turn pointed out promising avenues to pursue with regard to phosphors and emitters.

We also took a closer look at our milestones – the targeted improvements we've projected out over the years to come – and tried to bring them more in line with the progress that's been made to date, as well as with our new sense of what the limits of the technology are. And we completely revamped the discussion of loss mechanisms in LEDs and OLEDs – which, for the former, will help to focus attention on a major challenge: the considerable droop between peak output and normal operating currents.

We paid special attention to definitions, updating the MYPP terminology to align with the recently published IES Recommended Practice RP-16, Addendum a. Far from being an exercise in nitpicking and hair-splitting, this was a much-needed effort to put the entire industry on the same page with regard to terminology, based on current standards and those in development. As a number of people have pointed out, it's hard to communicate effectively without widespread agreement as to what various terms mean, and misunderstandings at this early stage of the technology create barriers that hold everyone back.

As always, we've thoroughly reviewed the tasks and re-prioritized them for the coming year based on our progress and estimate of areas requiring funding focus in the short term. And we've tried to clarify the scope and description of the tasks to guide the needed work. Many of the metrics are largely the same in this year's MYPP, but we've added a few for newly prioritized tasks, and have updated the targets for both individual tasks and for the overall projections, in most cases revising them upwards. One interesting finding we made

in the course of our recent updates is that, although the efficacies of warm-white LEDs are presently well below those of cool-white products, there are ways to close that gap, some of which are already being employed in products that have appeared on the market. Work in spectral shaping, including the use of hybrid LED package designs, will gradually allow both warm and cool LED package efficacies to approach 200 lm/W.

The Multi-Year Program Plan is the heart and soul of DOE's solid-state lighting R&D program. It shapes not only where we go, but how we get there. Those who want to learn more about it are invited to check out the 2010 MYPP.

As always, if you have questions or comments, you can reach me at postings@lightingfacts.com.